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SHORT REPORT

Endovascular Covered Stent for Inferior Epigastric Artery Rupture after EVAR for Standford B Aortic Dissection

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KEYWORDS
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Abstract Spontaneous epigastric artery rupture is a rare event, difficult to diagnose and may cause life-threatening shock. We report a case of an inferior epigastric artery rupture at its origin after treatment of Stanford B aortic dissection by endovascular exclusion. The cause of rupture was unknown, but it did not appear to be related to the previous operation. The ruptured artery was identified by arteriography and successfully treated with a membrane-covered stent. The patient was asymptomatic at 1 year of follow-up. Endovascular repair is an excellent treatment strategy for this kind of catastrophic event.

Introduction

Spontaneous inferior epigastric artery rupture is very rare with only a few reports in the English literature.[1–3] The clinical manifestation can be hemorrhagic shock or a large hematoma of the rectus abdominis sheath or posterior peritoneum.[2] As specific symptoms are lacking, the diagnosis is especially difficult in the absence of a causative factor such as lower abdominal trauma, femoral artery puncture, or hernia repair. In this report, we describe a case of inferior epigastric artery rupture at its origin after treatment of Stanford B aortic dissection by endovascular exclusion.

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Case Report

A 75-year-old male with a history of hypertension and diabetes was diagnosed with Stanford B aortic dissection by CTA after a routine physical examination. The proximal tear was 1.5 cm from the orifice of the left subclavian artery, and the maximum diameter of the false lumen was 5.5 cm. An endovascular exclusion operation was selected for treatment. After dissection of the left femoral artery, 5000 IU of heparin was injected intravenously for anti-coagulation. A Talent 34-34-100 membrane-covered stent (Medtronic, Santa Rosa, USA) was deployed to seal the aortic tear. Since angiography showed a type I endoleak at the proximal end of the stent, a 36-mm cuff was deployed and the stent was dilated using the balloon. Angiography was repeated and showed that the aortic dissection was successfully excluded without any endoleak. The intima of

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the left femoral artery was found to have a serious tear during closure of the entry site. The pulse of the superficial femoral artery was weak, and the distal limb was cool. Therefore, a 10 mm PTEE graft was used to create a femoral artery-superficial femoral artery bypass, and this restored blood flow to the distal limb.

No antiplatelet or anticoagulant therapy was given to the patient postoperatively. In the afternoon on the second postoperative day, the patient suddenly had left groin pain and there was bleeding after he turned over from the right recumbent to the supine position. Symptoms of shock appeared in approximately 3 min and his blood pressure was 81/43 mmHg. Left inguinal compression, rapid intravenous fluid infusion and dopamine were initiated immediately. By 2 h after the symptoms appeared, the blood pressure was stabilized at 105/60 mmHg. Angiography at this time showed that the arterial rupture was at the origin of the left inferior epigastric artery (Fig. 1). A 10 mm × 80 mm Fluency membrane-covered stent (Bard, Murray Hill, NJ, USA) was inserted via the right femoral artery. The proximal end of the stent was anchored in the external iliac artery, and the distal end in the graft. After stent deployment, the tear of the left inferior epigastric artery was covered. Angiography showed excellent exclusion of the left inferior epigastric artery without endoleak (Fig. 2). The entire procedure lasted 2 h, and the patient was stable at the end of the procedure. The patient was discharged after the wound healed. At 1 year of follow-up, he remained asymptomatic, and there were no complications such as lower extremity ischemia.

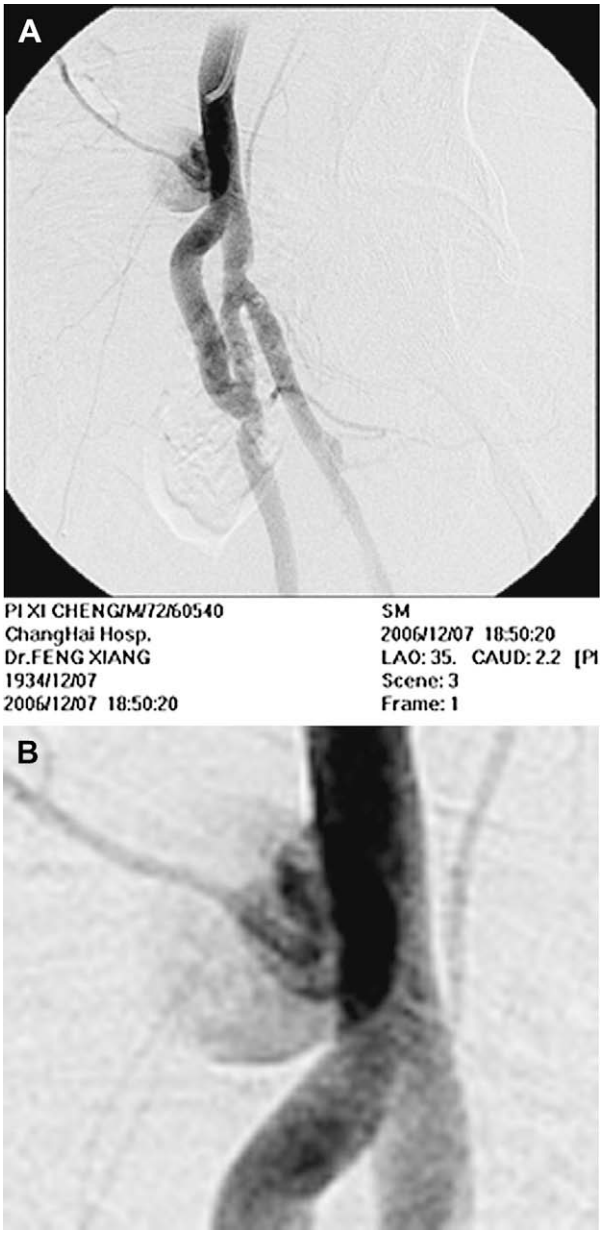

Figure 1 (A) Angiogram of the inferior epigastric artery. (B) Enlargement of panel A showing rupture and bleeding at the origin of the epigastic artery.

Discussion

Spontaneous inferior epigastric artery rupture is very rare and only a few cases have been reported previously.[1–3] Open surgery is the conventional treatment for this condition, but the surgery is more traumatic. In 1991, Parodi et al.[4] successfully applied endovascular technology to treat abdominal aortic aneurysms. We have also used this technique in our hospital since 1997.[5] Endovascular repair can be applied rapidly without general anesthesia. The time from angiography to the end of treatment was less than an hour in our case. Rapid diagnosis and effective treatment is essential to reduce both mortality and morbidity.

Figure 2 Angiography after the stent placement showed that the bleeding had stopped.

In summary, timely diagnosis and effective treatment is the key to reducing mortality and morbidity when there is spontaneous rupture of an artery such as the epigastic artery. Endovascular repair is rapid, convenient, minimally invasive and an excellent treatment strategy for this kind of catastrophic event.

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